

REMARKS

The Applicant notes that claims 19-22 and 26-29 are withdrawn from further consideration as being directed to non-elected species. Please note that the Applicant will request reinstatement of all appropriate withdrawn claims in the event that a generic claim is eventually allowed.

The drawings are objected to for the reasons noted in the official action. All of the raised drawing objections are believed to be overcome by the requested drawing amendments and the new formal figures which the Applicant respectfully requests entry thereof into the record of the application. The accompanying New Replacement Sheets of formal drawings incorporate all of the requested drawing amendments. The Applicant respectfully submits that no new matter is entered by the new or amended figures. If any further amendment to the drawings is believed necessary, the Examiner is invited to contact the undersigned representative of the Applicant to discuss the same.

The specification is objected to for the reasons noted in the official action, i.e., because the Abstract fails to comply with § 608.01(b) of the MPEP. The Abstract is suitably amended, by the above requested amendment, to overcome all of the raised informalities concerning the Abstract. If any further amendment to the Abstract is believed necessary, the Examiner is invited to contact the undersigned representative of the Applicant to discuss the same.

The title of the invention is amended to be clearly indicative of the invention to which the claims are directed. If further amendment to the title is believed necessary, the Applicant looks forward to any additional amendment the Examiner may care to make concerning the same.

The disclosure is objected to for the reasons noted in the official action, i.e., because the disclosure fails to avoid using legal phraseology normally reserved for claims. The Applicant notes that according to § 608.01(b) of the MPEP, legal phraseology "should be avoided" in the abstract of the disclosure, however there is no such requirement for the remainder of the disclosure, including the summary of the invention or the detailed description of the invention is suitably amended. The Abstract has been amended above to avoid such legal phraseology, however the Applicant elects not to amend the remainder of the disclosure.

Claims 17, 18, 23-25 and 30-32 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for the reasons noted in the official action. The rejected claims are accordingly amended, by the above claim amendments, and the presently pending claims are now believed to include all essential elements and particularly point out and distinctly claim the subject matter regarded as the invention, thereby overcoming all of the raised § 112, second paragraph, rejections. The entered claim amendments are directed solely at overcoming the raised indefiniteness rejection(s) and are not directed at distinguishing the present invention from the art of record in this case.

Claims 17, 23-25 and 30-32 are rejected, under 35 U.S.C. § 102(e), as being anticipated by Wada et al. '915 (U.S. Patent No. 6,826,915). The Applicant acknowledges and respectfully traverses the raised anticipatory rejection in view of the following remarks.

Wada et al. '915 describes a magnetic refrigerator which comprises, according to Figure 10, two magnetocaloric elements 10A' and 10B' are located in a container 80 in a thermally insulated state. The container 80 includes two chambers or cells 82A, 82B that are separated from each other by a partition 83. Each of the magnetocaloric elements 10A', 10B' is housed within a respective one of the two chambers or cells 82A, 82B. It is noted that the elements 10A', 10B' are spaced from the inner walls of the chamber or cell 82A, 82B in which they are housed by a gap. The gap between the elements 10A', 10B' and the inner walls of the chamber or cell 82A, 82B are filled with a heat transfer fluid that flows between heat transfer fluid inlet/outlet ports 84a, 84b (see column 13, lines 7-16).

The reference teaches that a first flow of heat transfer fluid passes into element 10A' through port 18a' where it transfers heat. The fluid then passes out of element 10A' through another port 18b', and into the chamber or cell 82B where it passes through the gap therein around the element 10B' after which the fluid flows out of the container 80 by way of port 84b. A second flow of heat transfer fluid passes into element 10B' through port 18b" where it transfers heat. The fluid then passes out of element 10B' through another port 18a", and into the chamber or cell 82A where it passes through the gap therein around the element 10A' after which the fluid flows out of the container 80 by way of port 84a (see column 13, lns. 26-43).

It is important to note that the first and the second flows of heat transfer fluid are completely separate, independent and completely insulated from one another. And each flow of fluid respectively passes through only one of the two the magnetocaloric elements 10A', 10B'. This configuration as taught by Wada et al. '915 allows for a reduction of the container's outer diameter or of the circular gap of magnetic circuit (see column 13, lines 44-47) so as to reduce the overall size and weight of the magnetic circuit.

The Applicant asserts that the claims of the application are distinct from the teachings of Wada et al. '915 as this reference fails to teach, disclose, suggest or even hint at the claimed features of at least one group of at least two thermal elements with at least one conduit passing through each thermal element and an interface plate that abuts the both of the thermal elements.

In contrast Wada et al. '915 teaches only two thermal elements that are separate and differentiated from one another. Although Wada et al. '915 may arguably teach a separating wall or partition, this wall or partition has no conduit that allows a flow between the thermal elements. The thermal elements are not interconnected in the container so as to enable a flow therebetween. In addition, the wall or partition has no inlet port or outlet port for connection to an external circuit. The Applicant asserts that with the teachings of Wada et al. '915 there is no possibility of connecting the different thermal elements with each other in series, parallel or mixed (serial/parallel).

Next, claims 17, 23-25, 30-32 are rejected, under 35 U.S.C. § 102(e), as being anticipated by Pfister et al. '720 (U.S. Patent No. 6,888,720). The Applicant acknowledges and respectfully traverses the raised anticipatory rejection in view of the following remarks.

Pfister et al. '720 relates to a cooling system for electronic components using graphite foam blocks. Each foam block 22 is mounted on an electronic component 14, which is mounted on a printed circuit board 16 for electronic components. The printed circuit board 16 supporting the foam blocks 22 and the electronic component 14. Each foam block 22 is housed within a housing 24, 24' which are connected by a network of pipes 28' and couplings 44 to a fluid source 26.

If one were to regard the foam blocks 22 as thermal elements, the Applicant notes that the foam blocks 22 are not pressed against the printed circuit board 16. In addition, the printed circuit board 16, if considered to form an interface plate, is only used for support and electrical connections to electronic components 14 as well as for the indirect support of some pipes. The printed circuit board 16 has neither pipe nor inlet port or outlet for connection to an external circuit.

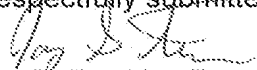
Thus, the Applicant asserts that the claims of the application are distinct from the teachings of Pfister et al. '720 as this reference fails to teach, disclose, suggest or even hint at the claimed features of a conduit connection means which connects one conduit to another conduit and comprises an interface plate that abuts at least two thermal elements and has at least one channel with connecting orifices that are located opposite inlet and outlet orifices in the thermal elements. The interface plate defining an interface circuit which facilitates circulation of thermal fluid between the two thermal elements and the at least one interface plate through one of a series, a parallel, and a mixed connection. The interface plate also having at least one supply orifice and at least one discharge orifice which connect the interface circuit to the external circuit of the heat exchanger.

In short the Applicant contends that neither Wada et al. '915 nor Pfister et al. '720 describes an interface plate to which the thermal elements are connected directly without additional components. This configuration of the claimed heat exchanger simplifies the assembly of the interface plate to thermal elements. In view of Wada et al. '915 and/or Pfister et al. '720, the Applicant asserts that it would not be obvious to an ordinary person skilled in the art to connect the thermal elements to the interface plate without connecting parts like pipes and couplings.

In view of the foregoing, it is respectfully submitted that the raised rejections should be withdrawn and this application is now placed in a condition for allowance. Action to that end, in the form of an early Notice of Allowance, is courteously solicited by the Applicant at this time.

The Applicant respectfully requests that any outstanding objections or requirements, as to the form of this application, be held in abeyance until allowable subject matter is indicated for this case.

Respectfully submitted,



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FIG. 2A

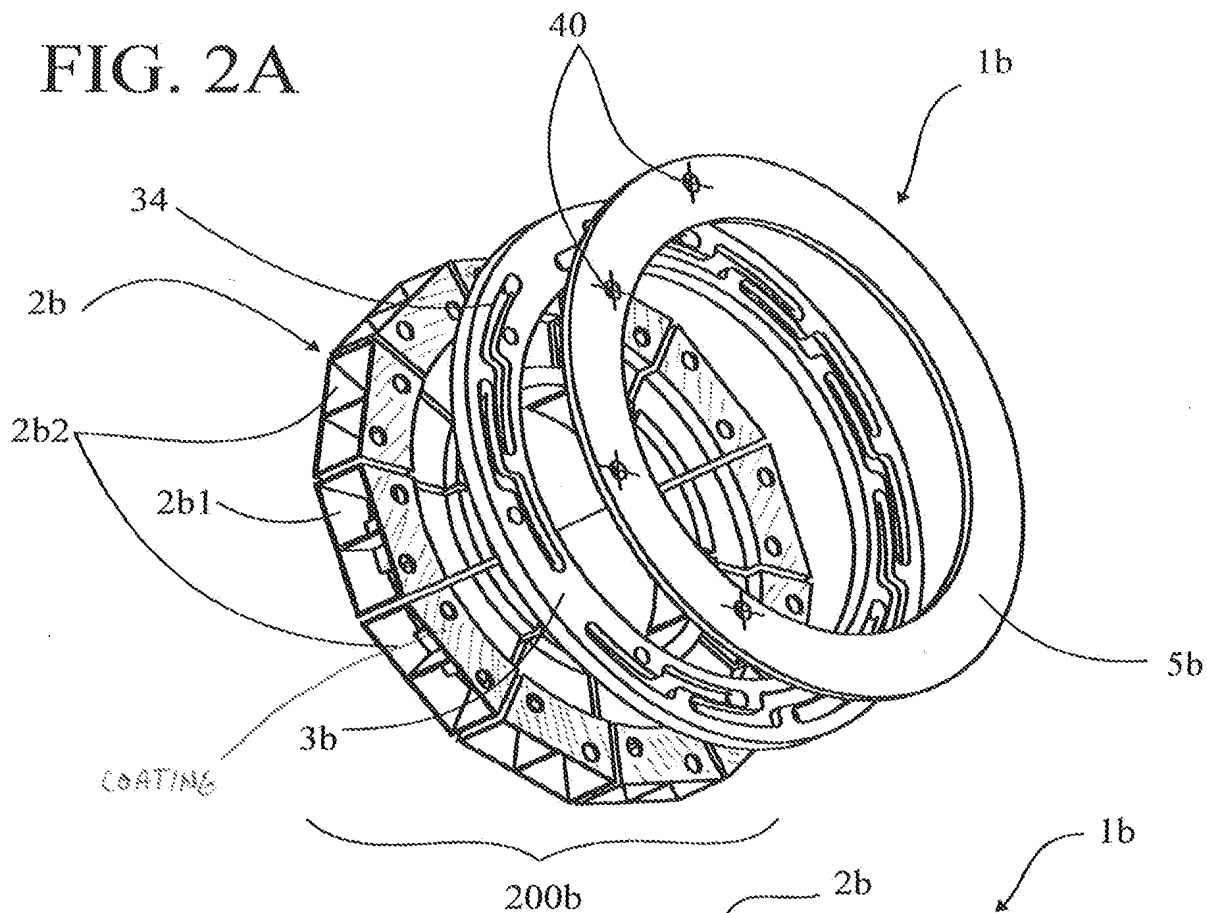


FIG. 2B

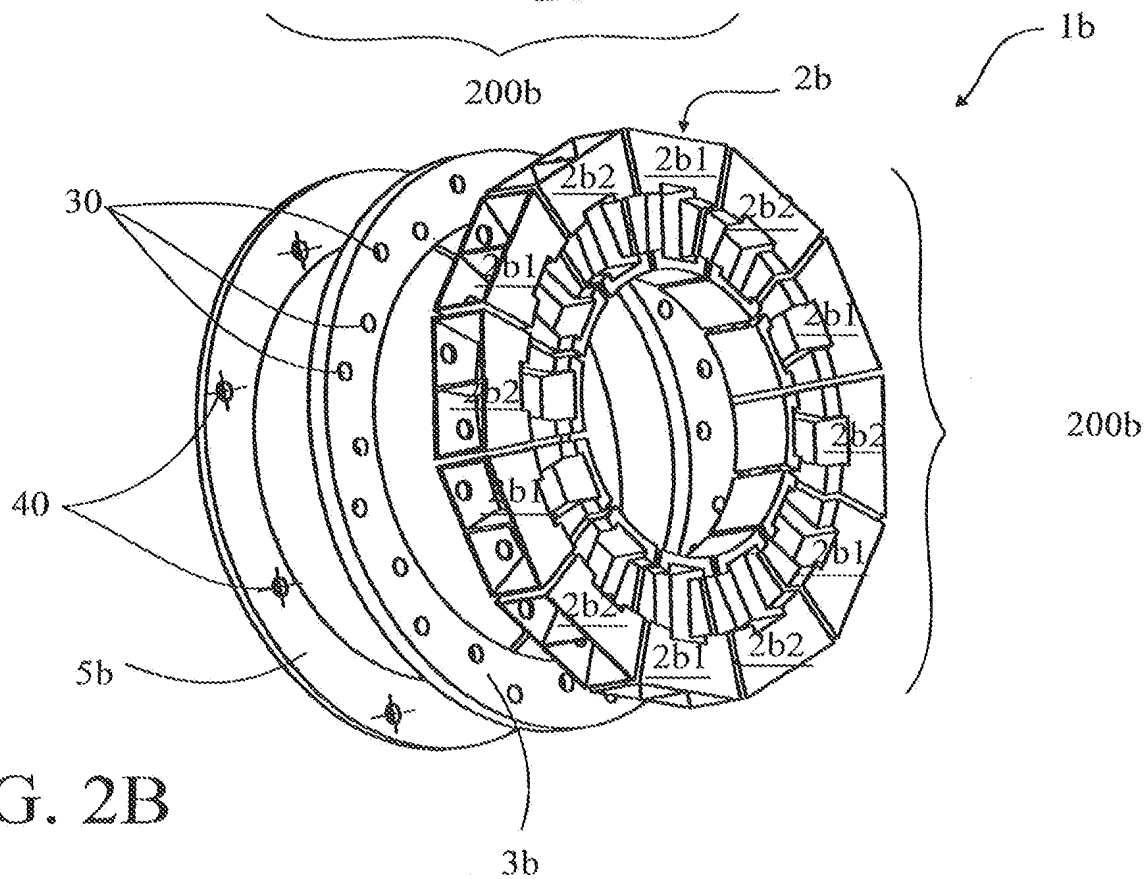


FIG. 3D

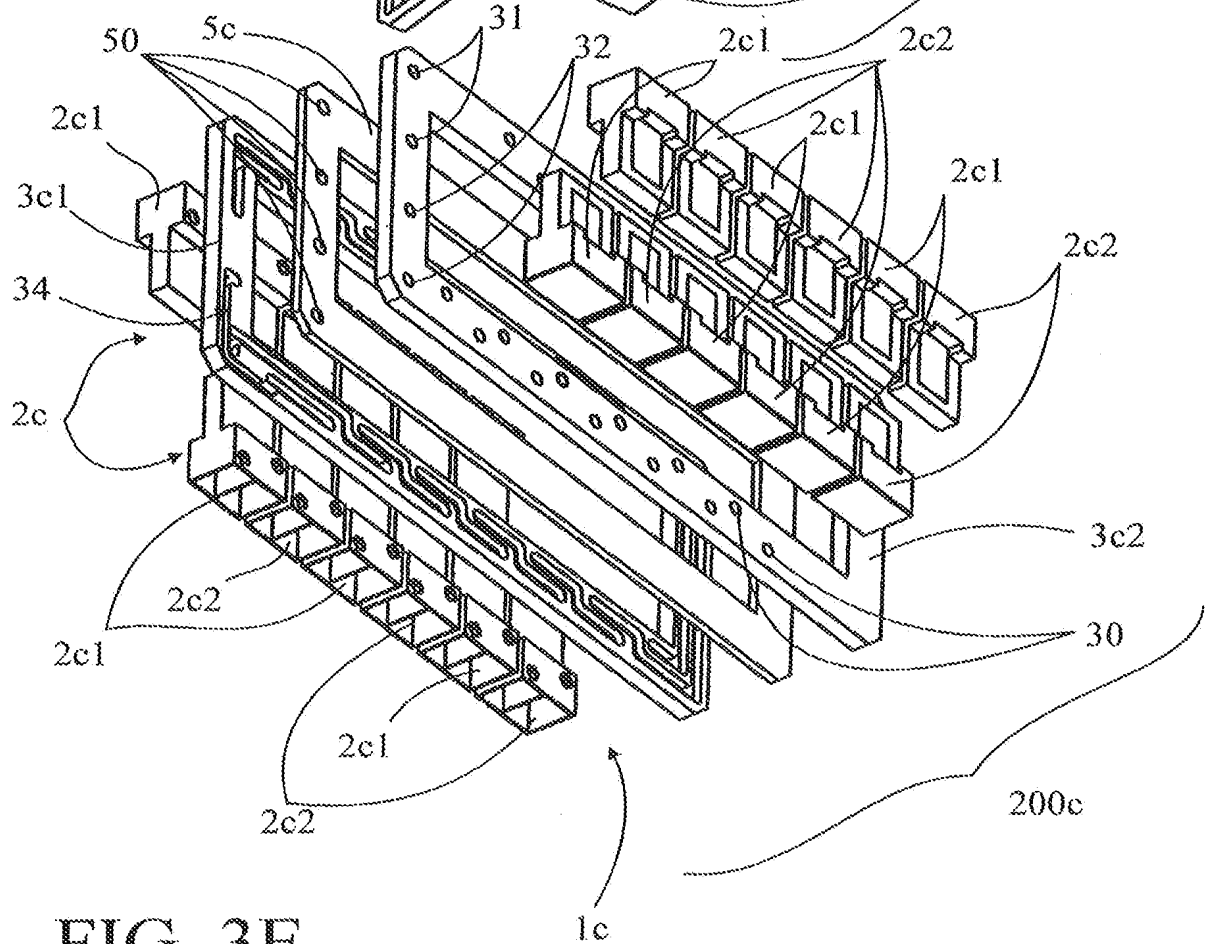
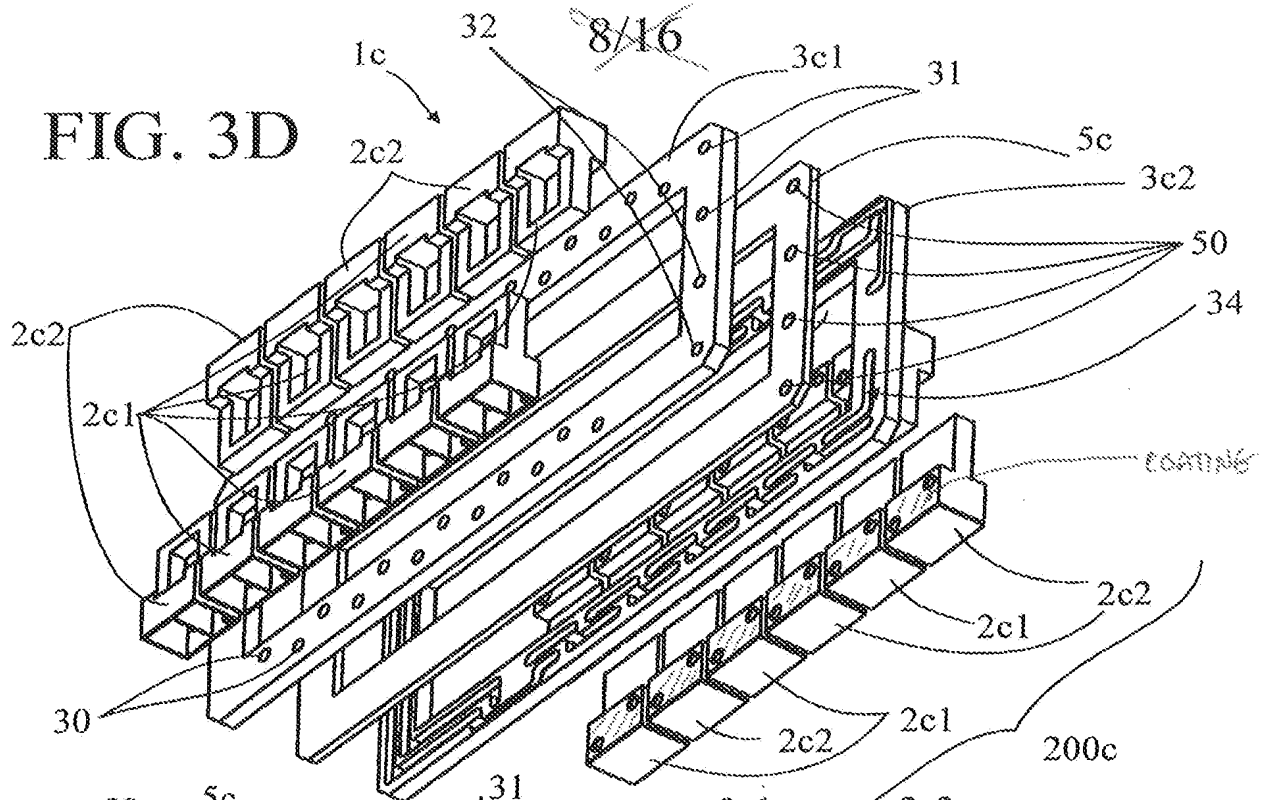


FIG. 3E